AF/ZW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT	:	Francois Martin			
SERIAL NO.	:	09/899,878	EXAMINER	:	Y. Young Lee
FILED	:	July 6, 2001	ART UNIT	:	2613
FOR	:	ADAPTIVE PRE-PROCESSING METHOD FOR MOTION ESIMATION			

RESPONSE TO NOTICE OF NON-COMPLIANT APPEAL BRIEF

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In Response to the "Notice of Non-Compliant Appeal Brief" dated January 25, 2006, Applicants enclose Appeal Brief with corrections deemed to be non-compliant.

No additional fees are believed to be necessitated by the foregoing amendment. However, should this be erroneous, authorization is hereby given to charge Deposit Account No. 502-470 for any underpayment, or credit any overages.

Respectfully submitted,
Russell Gross
Registration No. 40,007

Date: February 17, 2006

By: Steve Cha
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Steve Cha, Reg. No. 44,069
(Name of Registered Rep.)

(Signature and Date)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Before the Board of Patent Appeals and Interferences

In re the Application

Inventor	**:**	**Francois Martin**
Application No.	**:**	**09/899,878**
Filed	**:**	**July 6, 2001**
For	**:**	**ADAPTIVE PRE- PROCESSING METHOD FOR MOTION ESIMATION**

APPEAL BRIEF

On Appeal from Group Art Unit 2613

Russell Gross
Registration No. 40,007

Date: February 17, 2006

By: Steve Cha
Attorney for Applicant
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Steve Cha, Reg. No. 44,069
(Name of Registered Rep.)

(Signature and Date)

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TABLE OF CASES

I. REAL PARTY IN INTEREST

The real party in interest is the assignee of the present application, U.S. Philips Corporation, and not the party named in the above caption.

II. RELATED APPEALS AND INTERFERENCES

With regard to identifying by number and filing date all other appeals or interferences known to Appellant which will directly effect or be directly affected by or have a bearing on the Board's decision in this appeal, Appellant is not aware of any such appeals or interferences.

III. STATUS OF CLAIMS

Claims 1-7 have been presented for examination. All of these claims are pending, stand finally rejected, and form the subject matter of the present appeal.

IV. STATUS OF AMENDMENTS

In response to the patent application filed on July 6, 2001, and afforded US Patent Application Serial no. 10/242,929, a first Office Action, dated July 7, 2004, was entered into the record. Independent claims 1 and 5-7 were rejected under 35 USC §102(e) as being anticipated by Song (USP no. 6,560,371) and dependent claims 2-4 were rejected under 35 USC §103(a) as being unpatentable over Song in view of Hampson (Motion Estimation in the Presence of Illumination Variations). On October 13, 2004, a response to the rejection of the claims was provided wherein claims 1 and 5-6 were amended and arguments were presented as to why the claims were not anticipated by the cited prior art.

On December 21, 2004, a second and Final Office Action was entered into the record. Claims 1 and 5-7 were rejected as being anticipated by Song and claims 2-4 were rejected as being unpatentable in view of Song and Hampson for the same reasons recited in the prior Office Action. On February 7, 2005, a response to the Final Office action was filed, which again presented arguments as to why the claim were not anticipated or rendered obvious by the cited references. Claims 5 and 6 were amended. On February 18, 2005, an Advisory Action was entered into the record that maintained the reason for the rejection. The Advisory Action stated that "column 11 of Song explicitly discloses the concept of a histogram."

On May 10, 2005, an Appeal Brief was filed by applicant requesting this Honorable Board review the reasons for rejecting the claims. On May 24, 2005, a Notification of Non-compliant Appeal Brief was entered into the record. A revised Appeal Brief as filed on June 14, 2005, which corrected the deficiencies note in the notification of non-compliance.

On July 12, 2005, a second Final Office Action was entered into the record. Independent claims 1 and 5-7 were rejected as being anticipated by De Haan (USP no. 6,278,736) and claims 2-4 were rejected as being unpatentable over the combination of De Haan and Hampson. In response to the second Final Office Action, arguments were presented as to why the claims were not anticipated or rendered obvious in view of the cited reference. Amendments to dependent claim 4 were made to correct errors in form. Arguments were also presented as to why the second Final Office Action was premature. On September 14, 2005, a second Advisory Action was entered into the record which maintained the reason for the rejecting the claims. The Advisory Action stated that the

rejection was being maintained "because the values of the histogram being used is not claimed." The Advisory Action stated that the amendments made to the claims would be entered for the purpose of an appeal. In reply to the arguments made that the second Final Office Action was premature, the Advisory Action further stated that the "final rejection is proper because it is responsive to the amended claims filed on 10/13/04."

A Notice of Appeal, with appropriate fee, was filed on October 4, 2005. This Appeal Brief is being filed within two (2) months after the filing of the Notice of Appeal

V. SUMMARY OF CLAIMED SUBJECT MATTER

The subject matter claimed includes a method of processing an input digital signal (claim 1), a method of encoding an input digital signal (claim 5), a video encoder (claim 6) implementing the processing recited in claim 5 and a computer program product (claim 7) that includes a set of instructions which when loaded into a video encoder causes the encoder to execute the processing recited in claim 1. The method recited in claim 1 more specifically recites that the processing of an input signal computes a histogram of luminance or chrominance of original values associated with pixels belonging to a video frame, analyzing the histogram to determine histogram parameters and correcting the original pixel values on the basis of the histogram parameters to provide modified pixel values which yield modified digital video signals. (see page 1, line 27-page 2, line 4 and Figure 1). The method recited in claim 5 more specifically recites that the encoding of an input video signal comprises modifying an input video signal to produce a modified digital signal by using the method recited in claim 1, estimating motion to produce motion vectors, and compressing the input digital signal

using the motion vectors to encode the signal. (see page 7, lines 1-17 and Figure 7). Page 1, lines 9-15 describe that the processing recited in claims 1 and 5 are applicable to video encoders, that are recited in claims 6 and 7.

VI. GROUNDS FOR REJECTION TO BE REVIEWED ON APPEAL

The grounds of rejection to be reviewed on appeal are:

1. Claims 1 and 5-7 are rejected under 35 USC 102(e) as being anticipated by De Haan; and

2 Claims 2-4 are rejected under 35 USC 103(a) as being unpatentable in view of the combination of De Haan and Hampson.

VII. ARGUMENT

I. USC §102 Rejection of claims 1 and 5-7

Claims 1 and 5-7 are not anticipated under 35 USC §102(e) by De Haan as De Haan fails to show all the limitation cited in independent claims 1 and 5-7.

The instant invention, as recited in claim 1, for example, discloses a method and apparatus for performing a histogram of original pixel values, analyzing the histogram to obtain histogram parameters and adjust the original pixel values by the histogram parameters.

De Haan discloses a method for estimating motion vectors, wherein motion parameters are determined for a given field of a video signal and motion vectors for a next field are determined in dependence upon at least one predetermined motion vector and at least one addition motion vector is derived from the motion parameters. (see Abstract).

De Haan discloses that the motion parameters may be determined by a histogram wherein "the peaks in the histogram form the motion parameters. The peaks indicate motion vectors which very often occur in the image and which probably describe a global motion. The motion vectors indicated by the peaks, and/or points of gravity of a cluster of peaks, can be used as additional parametric motion vectors." (see col. 15, lines 9-17).

De Haan Fails to Anticipate the Claimed Invention

"Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, *arranged as in the claim*." Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co., 221 USPQ 481, 485 (Fed. Cir. 1984) (emphasis added).

Contrary to the position stated in the Advisory Action and the Office Actions, De Haan fails to disclose each and every element recited in claim 1, for example, as De Haan describes determining motion vectors that are used for determining motion in an image, wherein "motion in video images is either due to objection motion or caused by camera movements." (see col. 3, lines 60-61).

Accordingly, De Haan cannot be said to anticipate claim 1 because it fails to recite the elements "computing a histogram of luminance or chrominance of original values of pixels and correcting the original pixel values on the basis of the histogram." Rather De Haan discloses computing motion vector parameters using a histogram technique.

For at least this reason, appellant respectfully submits that the reason for the rejection cannot be sustained.

With regard to claims 5-7, these claims were rejected for the same reasons used in rejecting claim 1 and, hence, the arguments made with regard to claim 1 are also applicable to the rejection of these claims, and are reasserted as if in full.

Appellant respectfully submits that the independent claim 1 and 5-7 are patently distinguishable and allowable over the teaching of De Haan.

2. 35 USC §103 Rejection of claims 2-4

Claims 2-4 depend from claim 1 and the rejection of claims 2-4 is in error. because the references cited fail to show a limitation cited in the independent claim 1, from which claims 2-4 depend.

As shown above the independent claims are not anticipated by the teaching of De Haan and the additional reference cited fails to provide any teachings to correct the deficiencies noted in De Haan.

For at least this reason, appellant respectfully submits that the reason for the rejection cannot be sustained.

Notwithstanding the arguments above, appellant respectfully submits that claims 2-4 are allowable at least for their dependence upon an allowable base claim, without even contemplating the merits of the dependent claims, for reasons analogous to those held in *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) (if an independent claim is non-obvious under 35 U.S.C. §103(a), then any claim depending therefrom is non-obvious).

VIII. CONCLUSION

In view of the law and facts stated herein, it is respectfully submitted that the teachings of the cited references fail to anticipate or suggest the claimed invention and

the burden of showing that the cited references disclose all of the features, expressly or inherently, recited in the claims has not been met.

It is respectfully requested that this Honorable Board reverse all grounds of rejection stated in the Final Office Action and allow all the claims.

Respectfully submitted,
Russell Gross
Registration No. 40,007

Date: February 17, 2006

By: Steve Cha
Attorney for Applicant
Registration No. 44,069

VIII. CLAIMS APPENDIX

The claims which are the subject of this appeal are as follows:

1. A method of processing an input digital video signal comprising video frames so as to provide a modified digital video signal for a motion estimation step said processing method comprises the steps of:

- computing a histogram of luminance or chrominance of original values associated with pixels belonging to a video frame,
- analyzing the histogram to provide histogram parameters, and
- correcting the original pixel values on the basis of the histogram parameters to provide modified pixel values, which yields the modified digital video signal to be used by the motion estimation step.

2. A method of processing as claimed in claim 1, wherein the analyzing step comprises a sub-step of calculating a translation parameter of the histogram, and the correcting step is adapted to derive the modified pixel values from a sum of the original pixel values and the translation parameter.

3. A method of processing as claimed in claim 1, the analyzing step comprises a sub-step of calculating a width variation parameter of the histogram, and the correcting step is adapted to derive the modified pixel values from a product of the original pixel values and the width variation parameter.

4. A method of processing as claimed in claim 1, further comprising the step of:

filtering the modified digital video signal so as to provide a filtered modified digital video signal for the motion estimation step.

5. A method of encoding an input digital video signal comprising the steps of:

- pre-processing the input digital video signal so as to provide a modified digital video signal,

- estimating motion from the modified digital video signal so as to provide motion vectors,
- compressing the input digital video signal from the motion vectors so as to provide an encoded digital video signal,

wherein the pre-processing step comprises the sub-steps of :

- computing a histogram of luminance or chrominance of original values associated with pixels belonging to a video frame,
- analyzing the histogram to provide histogram parameters, and
- correcting the original pixel values on the basis of the histogram parameters to provide modified pixel values, which yields the modified digital video signal to be used by the motion estimating step.

6. A video encoder comprising:

- a pre-processing device for receiving an input digital video signal and for supplying a modified digital video signal,
- a motion estimator for receiving the modified digital video signal and for supplying motion vectors,
- a data compressor for receiving the input digital video signal and for deriving an encoded digital video signal from the motion vectors,

wherein the pre-processing device comprises:

- means for computing a histogram of luminance or chrominance of original values associated with pixels belonging to a video frame,
- means for analyzing the histogram in order to provide histogram parameters, and
- means for correcting the original pixel values on the basis of the histogram parameters and adapted to provide modified pixel values, which yields the modified digital video signal for the motion estimator.

7. A computer program product for a video encoder that comprises a set of instructions, which, when loaded into the video encoder, causes the video encoder to carry out the processing method as claimed in claim 1.

X. EVIDENCE APPENDIX

No supplemental evidence was provided by appellant that the examiner entered into the record during the prosecution of this matter.

XI. RELATED PROCEEDING APPENDIX

No related proceedings are pending and, hence, no information regarding same is available.